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ABSTRACT

To alleviate problems with course content, procedure, and philosophy identified by basic communication skills students and faculty, the University of Oklahoma developed a computer assisted Student Assessment Center (SAC) as a basic communication course adjunct. The SAC allows students from all sections of the course to take each of the four unit tests on a self-paced flexible schedule outside of regular class time. Two analyses were conducted to determine the impact of the SAC on specific course aspects. The results of the time allocation analysis indicated an increase of about one and one-half weeks devoted to discussion and evaluation of student skill development presentations. Course procedure analysis indicated that problems of inter-section grading inconsistency and instructor evaluation skills were addressed by means of the record keeping and statistical display dimensions of the SAC. The limited use of some of the easily retrievable data from the SAC system encourages instructional improvement by allowing quick and responsible attention to potential problems. (HTH)

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Enhancing basic course values and reducing problems with a computer-assisted Student Assessment Center

An abstract for a paper submitted to the Basic Course Committee of the Speech Communication Association for its 1985 convention.

by

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Students value the experiential learning activities and high amount of interaction in a basic communication course. At the same time course inherent problems--high turnover of inexperienced instructional staff and too much material for too little time--reduce effectiveness. A computer-assisted centralized Student Assessment Center (SAC) facility should allow significant time reallocation to enhance existing values as students see them. Instructional problems may be alleviated by indirect means. The data accumulation and organizing features of the SAC allow summarized data on student performance and instructional staff grading practices to be fedback to teachers on short and frequent intervals. Comparisons of before-after time usage-patterns and examination of two specific cases provide information about SAC effects.

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Enhancing basic course values and reducing problems with a computer-assisted Student Assessment Center

Centralized testing and individually paced learning programs are not new to basic courses in communication, but such procedures usually have been developed as economical ways of educating large numbers of students. The development of a computer assisted Student Assessment Center (SAC) as a basic course adjunct at the University of Oklahoma is instead an attempt to enhance some values of an existing multi-section course as well as to ameliorate some significant difficulties.

A local survey of student reactions to our basic course content and procedures indicated high positive valuing for skill/experiential learning activities and the high levels of instructor-student and student-student interaction. Students felt that the experiential activities were socially and professionally practical and also helped them reduce their communication apprehension. Further, student responses revealed that in the setting of a moderate to large university, this course provided a rare opportunity to expand interpersonal networks as well as gain identity with a member of the teaching faculty.

The survey also identified some course problems. One set of problems centered on instructional practices, namely use of class time given course objectives, and inconsistent grading practices among the many sections. These problems seem inherent to the usual circumstances of continuous turnover of a large instructional staff composed almost exclusively of inexperienced graduate teaching assistants.

Another set of problems was identified not from the survey, but from analysis by several members of the teaching staff and concern difficulties arising from the course philosophy and content. The basic course here is a "hybrid" course which considers concepts and skills over a variety of communication contexts (interpersonal, small group, public communication), with a sixty/forty percent blend of skill and cognitive learning goals. As with the experience of many other hybrid basic courses, finding sufficient time to accomplish major course goals was a substantial problem. Providing adequate time for class discussion and a variety of communication experiences was particularly difficult, yet essential, considering how importantly our students value these course elements.

The concept of a centralized testing facility (the Student Assessment Center) seemed to be a way in which class time could be reallocated to increase time available for those activities which could be most effectively conducted by the teaching assistants and decrease in-class time spent in areas not directly supporting the perceived course benefits. In other words, student-instructor and student-student interaction time could be increased, as well as time devoted to skill-directed activities, and test-taking and feedback time could be decreased and accomplished in another way.

The Student Assessment Center

The Student Assessment Center (SAC) is a centralized testing center which consists of a two room suite with a reception center and a testing

room with 30 stations. In the reception center, personal computers, printers and card readers are tied together by a hard disk drive to allow administration and immediate scoring of hard copy objective tests. Additionally, the system provides electronic grade book features and extensive record keeping possibilities. Also available are on-demand information retrieval for instructors, grade status reports for students, course administrative data, and grade distribution statistical analyses.

Procedurally, the SAC allows students from all sections of the course (approximately 800 per semester) to take each of the four unit tests on a self-paced flexible schedule outside of regular class time. Typically, as students enter the Center during designated "open" hours, they identify themselves with picture ID and a unique code number assigned by their instructor. Their test eligibility is verified on the computer and they are randomly assigned one of four forms of an objective test and a special mark-sense answer card. Students complete the objective form of the test in the testing room and return to the reception center when it is completed. At that time their objective test answers and question sheet are taken up and the students are issued one of four forms of an essay question. While students answer the essay question, the objective portion of the test is scored on the card reader and a report is printed with copies for both student and instructor. The report indicates the raw score, percentage and numbers of any items that may have been missed on the test. This information is also automatically entered into the student's record.

As students complete their answers to the essay question, they return this to the reception center, receive a copy of the test report, have their ID's returned to them, and leave. Section instructors are encouraged to score the essay answer within a day or two, return it to the student and enter the data in the student's record.

SAC impact on class time usage

Two analyses were conducted to consider the impact of the SAC on specific course aspects. The first area of concern is class time reallocation; the second area has to do with instructional improvement. Before the SAC system was implemented, course instructors were asked to complete questionnaires concerning use of in-class time for a variety of activities; after the SAC had been in operation for more than a year and a half, the same questionnaire was completed by the instructional staff. Fifteen instructors responded each time; no instructor completed both before and after survey. The results of those surveys are displayed in Table I.

Statistical significance tests for the above data would not seem appropriate, but analyses of the data can be made with some informal inferences suggested.

Given the goals of the SAC program, most important is the comparison of class time devoted to discussion and evaluation of student presentations devoted to skill development. From a pre-SAC average percentage of 16.1 of total time, this activity increased to 24.94%. Operationalized as actual clock time, this represents 212 minutes, or about one and one half weeks of additional class time devoted to this activity over a semester's

TABLE I

Please estimate the percentage of total in-class time devoted to the following activities over the course of a semester. Be certain that the total of all the sub-categories is 100%.

	SURVEY DATA	
A Lecturing	Pre-SAC	Post-SAC
1. Explanation/development (including any class questioning or discussion) of material included in the course textbook or syllabus supportive of the cognitive objectives tested in the unit tests.	22.26	20.0
2. Explanation/development (including questioning or discussion) of material included in the course textbook or syllabus supportive of the skill-related objectives evaluated in the student class presentations.	14.40	13.70
3. Explanation/development (including questioning and discussion) of concepts and skills not evaluated in the course tests or student presentations.	2.40	6.94
TOTAL LECTURING	39.60	39.76
B Learning Activities (including games, simulations, skill practice, etc. which are not evaluated)		
1. Related to the cognitive aspects of the course tested in the unit tests	13.86	8.68
2. Related to the skill aspects of the course evaluated in the student presentations.	14.06	12.44
3. Related concepts or skills not evaluated in the tests or skill presentations.	2.53	3.76
TOTAL LEARNING ACTIVITIES	30.13	25.47
C Evaluation (assigning scores or grades to any student behavior)		
1. Administering tests, distributing & discussing results	8.70	5.52
2. Observing, evaluating and discussing student skill presentations.	16.10	24.94
TOTAL EVALUATION	24.00	30.47
D Course administration (explaining class procedures, taking attendance, etc.)	5.66	4.47
E Other (please describe) _____.	.04	.76
TOTAL	100%	100%

span. This contrasts to the decrease in time devoted to test considerations which declined from 8.7% to 5.52% (See area C on Table I). Notably, a greater portion of class time was being spent in the kinds of student-instructor and student-student interactions which the students previously had identified as most valuable and which appeared to be a course strength.

Total class time devoted to lecturing remained approximately the same, while time for other instructional activities declined (see areas A & B). Interestingly, both lecturing and instructional activity relevant to the cognitive or test-related aspects of the course declined. Since course instructors may be less involved in the development and administration of individual section tests, they may devote less attention and energy to that aspect of the course. Unfortunately, no pre-SAC data are available concerning student performance on the tests, but one concern would be whether student achievement on the tests declines as instructors devote less class time to that course dimension. This decrease in class activity is paralleled, however, by decrease in both lecture and instructional activity concerning the skill-oriented aspects of the course. These data are surprising, as the expectation would be that instructional time would increase as it were available due to reduced test-centered time.

The percentage of class time devoted to both lecturing and instructional activities not specifically related to particular course objectives increased slightly and this could be of some concern should this trend persist. If the increased class time available because of the rerouting of some activities to the SAC is committed to concerns not directly relevant to course objectives, obviously the potential of the SAC program is not being realized.

Course administrative time decreased, but probably as a result of a more extensive and complete course syllabus, common to all sections.

SAC data usage and instructional improvement

The other problems of inter-section grading inconsistency and instructor evaluation skills were addressed by means of the record keeping and statistical display dimensions of the SAC. Directors of multi-section basic courses are familiar with the problem of attempting to increase instructional performance by means of direct observation and conference with each instructor. Not unusually, 25-30 individuals may teach our course and meaningful observations of all would be impossible. Rather, we chose to address this problem from a less direct, feedback/self-assessment and instructional counselling perspective. An examination of some cases illustrates the testing center potential here.

Since the data on student achievement are either stored automatically in the record keeping program or entered by the instructor, a very complete set of data is available for examination and analysis at any time. For example, after Test I is completed, section average scores were computed, reported to all instructors, and compared with overall course descriptive statistics. Table II illustrates mean scores, standard deviations and ranges for each of the 26 sections on Test I, Part 1 (objective), Part 2 (essay) and Total Score. Also shown are the course-wide statistics. Similar data are shown for scores awarded on one of the six course skill assignments -- interviewing.

Viewing the Test I, Part 1 data, we identified two cases of note. The $\bar{X}$ score for Section 3 ranks highest and beyond one SD ot the course mean.

TABLE II

Section	Test I Pt. 1	Test I Pt. 2	Total	Student Skill Presentation
1	61.2	18.9	80.12	87.36
2	57.9	17.0	74.91	84.17
3	64.4	16.8	81.27	85.11
4	62.8	18.9	81.81	84.34
5	59.2	18.2	77.54	85.29
6	61.5	18.8	80.32	93.08
7	48.0	12.5	60.52	83.80
8	51.6	17.2	69.31	83.14
9	55.6	17.6	73.29	83.58
10	61.5	17.3	78.91	85.40
11	63.8	17.5	81.35	95.96
12	57.8	17.4	75.25	88.96
13	60.8	19.6	80.46	72.46
14	60.1	15.2	75.45	81.45
15	55.1	13.3	68.54	88.58
16	63.8	19.0	80.40	no dt
17	62.2	17.0	79.35	81.13
18	61.8	19.5	81.33	no dt
19	58.2	18.2	76.51	no dt
20	56.6	18.5	75.12	93.39
21	58.4	16.6	75.16	85.86
22	57.6	18.3	76.24	88.00
23	58.6	16.2	74.95	82.40
24	61.5	17.4	78.92	86.72
25	56.7	17.5	74.26	85.50
26	63.9	17.3	81.23	85.60
Course X	59.30	17.41	76.92	85.71
Course SD	3.88	1.70	4.74	7.73
Range	48.0-64.4	12.52-19.6	60.52-81.81	72.46-95.96

While occasionally an exceptional group of students might come together by chance in one section, we assume random distribution among the sections and therefore considered that in this case there was exceptional achievement by the students as a whole. Here the instructor was praised and reinforced for exceptional accomplishment and interviewed for suggestions of procedures which encouraged high performance. Other potential causes for the high performance level were also considered and discussed. In contrast, Section 7 had some problems and immediate attention was given to that case through course director and instructor conferences where additional information was gathered and analysis made of possible causes for the below par section performance.

Also of concern were instructors' practices as revealed on the subjectively based course evaluation elements such as the test (Part 2) essay question and student skill presentations. Table II data prompted particular attention to Sections 7, 13, 15 and 18 where average scores were considerably distant from the course mean. Particular concern was directed towards Sections 3 and 14, where scoring on essay responses was notably out of sinc with $\bar{X}$ student scores on the objective portion. Here again counselling with instructions provided a means of giving quick attention to identifying causes for these unusual results. On the skill activity score, average scores for Sections 6, 11, 13, and 20 suggested that instructors for these groups were applying different criteria to scoring these presentations. As a means of treating this problem, these instructions were asked to observe other course sections and to participate in some practice grading activities.

The feedback/self-assessment/counselling approach described here is a technique readily applied through the SAC system and helps to quickly identify potential problem areas. Obviously treatment of the problems may be a protracted process involving training sessions as well as other means. However, as a system for quickly locating potential catastrophes in their early stages, the SAC data analysis capacity was of considerable help.

Two additional cases illustrate the potential for the system. As illustrated in Table III, Instructor A's section on Test 1 performed considerably below the course $\bar{X}$ level on both the objective and subjective portions of the test. Problem-identification interviews held between the course director and the instructor revealed some classroom practices which may have suppressed student achievement. Instructional suggestions were offered, class observations made, and student scores steadily improved to more nearly approach the course mean.

Instructor B's assessments of student skill performances were exceptionally generous at the term's beginning. The same general procedure as above was followed and the instructor's evaluations again changed to move closer to the course average. The eventual goal would be for an instructor's mean evaluations to fall within one standard deviation of the course distribution of scores. These cases are not necessarily representative of all situations, but describe instances where data were used to identify problems and cope with them successfully.

TABLE III

INSTRUCTOR A

Section Mean Scores

Test 1			Test 2			Test 3			Test 4		
Pt 1	Pt 2	Tot	Pt 1	Pt 2	Tot	Pt 1	Pt 2	Tot	Pt 1	Pt 2	Tot
48.0	12.5	60.5	52.1	16.3	68.4	50.0	14.5	58.0	50.9	16.7	63.3

Course Mean

59.3	17.4	76.9	58.5	16.3	75.7	54.1	16.0	69.7	52.7	17.1	70.9

Course SD

3.88	1.70	4.74	4.82	1.38	5.21	5.34	1.96	6.33	5.37	1.80	5.31

INSTRUCTOR B

Student Skill Presentations

	1	2	3	4	5	6
Section $\bar{X}$ Score	99.6	82.4	90.4	89.3	83.3	83.6
Course $\bar{X}$ Score	88.1	85.7	85.6	85.8	81.4	82.9
Course SD	8.33	7.73	11.76	7.30	5.78	7.73

Ideally, the standard deviations for test scores and student skill presentations should decline over the course of a semester. However, since the material in each of our tests varies in amount, scope and difficulty, and the skill activites are assessed on different criteria, it would be unlikely that a steady decrease in the SD could be expected or used as a criterion for increased evaluation consistency. Instead, each set of scores represents independent conditions that must be considered on their own.

Clearly the data feedback indirect approach to instructional improvement is not limited to SAC-type systems, but the automatic record keeping function of the SAC together with the electronic grade book feature greatly facilitate this technique. Data retrieval is relatively easy and can be used in a multitude of instructional improvement and research programs.

Although the data and case situations described here are not conclusive means of testing the efficacy of the SAC program, clearly they suggest that some of our goals may be within reach. Given the difficulties of earning positive student reaction to a large, multi-section basic course taught by beginning graduate assistants, we think that this approach provides a means of enhancing some of the perceived benefits of the course. While we are hesitant to equate student satisfaction with effective instruction, we realize that learning may be made more possible in a situation where students feel their time is well spent. Similarly, we cannot rely solely on student notions of what ought to constitute the form or content of a course, but when those ideas can be made to coincide with instructor determined goals and procedures, the results can be very positive.

The limited use of some of the easily retrievable data from the SAC system encourages instructional improvement by allowing quick and responsive attention to potential problems. Further, relieving inexperienced teachers of some of the most difficult instructional tasks, at least at the beginning of their careers, should allow a more positive entry into the profession, with less negative impact on the unsuspecting undergraduate student. Self-assessment of one's own instructional outcomes (as revealed in student performance scores) can provide an effective means of identifying strengths and weaknesses in one's teaching practices.

Some rigorous testing would be needed to provide more definitive assessment of the SAC approach to the basic course. For example, follow-up surveys can determine whether we have maintained or improved our student's positive perceptions of what they have gained from the course. Also, we should monitor progress in alleviating some of the course problems identified in previous surveys. While what we have described in this paper suggests that progress <u>should</u> have been made in both areas, empirical tests should provide us with more confident conclusions.

Course directors who have favored "hybrid" basic courses and who have experienced the real problems of finding sufficient time for the variety of activities inherent to such a course should find the SAC concept useful. Course directors who have faced the unenviable task of attempting to observe a multitude of beginning instructors in a meaningful way may also see the

benefits of using SAC generated data as a way of identifying particularly effective and ineffective practices and attending to them most directly.

The Student Assessment Center concept may prove a practical, affordable and generalizable technique for solving some significant large course instructional problems. Additionally, it may, through time management, allow us to enhance those values students find in our courses -- personal identification and social networking.

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